

## REMARKS

Claims 1-21 are pending in the application. Claims 1-6 and 13-17 have been withdrawn from consideration. Claims 7-12 and 18-21 have been rejected. The Examiner requested that a formal cancellation be made of Claims 1-6 and 13-17 in the formal Response. The Examiner objected to the drawings under 37 C.F.R. 1.84(p)(5) for containing a reference sign not mentioned in the description. The Examiner objected to the Abstract for allegedly containing grammatical errors. The Examiner objected to the title of the invention as not being clearly indicative of the invention. The Examiner further rejected Claims 7-12 and 18-21 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirements. The Examiner rejected Claims 7-12 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirements. The Examiner rejected Claims 7-12 and 18-21 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner rejected Claims 7-12 under 35 U.S.C. §112, second paragraph as being incomplete. The Examiner again rejected Claims 7-12 under 35 U.S.C. §112, second paragraph as being incomplete. The Examiner rejected Claims 18-21 under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner rejected Claim 20 as “incomprehensible”. The Examiner has rejected Claims 7-10, 12 and 18-21 under 35 U.S.C. §102(b) as being anticipated by Yi (U.S. Patent 5,978,365). The Examiner has rejected Claim 11 under 35 U.S.C. §103(a) as being unpatentable over Yi in view of Rowitch et al. (Rowitch, D.N., Milstein, L.B., On the Performance of Hybrid FEC/ARQ Systems Using Rate Compatible Punctured Turbo (RCPT) Codes, IEEE Transactions on Communications, Volume 48, Issue 6, June 2000, Pages 948-959).

Regarding the request that a formal cancellation be made of Claims 1-6 and 13-17 in the formal Response, Applicants formally cancel Claim 1-6 and 13-17, without prejudice.

Regarding the objected to the drawings under 37 C.F.R. 1.84(p)(5) for containing a reference sign not mentioned in the description, Applicants have amended the paragraph beginning on page 15 and continuing onto page 16, to correct any inconsistency. Based on the foregoing amendment, withdrawal of the objection of the drawings is respectfully requested.

Regarding the objected to the Abstract for allegedly containing grammatical errors, the Abstract has been amended to address the issues raised by the Examiner. Based on the foregoing

amendment, withdrawal of the objection of the Abstract is respectfully requested.

Regarding the objected to the title of the invention as not being clearly indicative of the invention, please accept the following new title: APPARATUS AND METHOD FOR GENERATING SUB-CODES TO A TURBO-ENCODER. Based on the foregoing amendment, withdrawal of the objection of the Title is respectfully requested.

Regarding rejected Claims 7-12 and 18-21 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirements, the Examiner states that the term “puncturing range” is not described in the specification in a way to enable one skilled in the art to make or use the invention. It is understood that “puncturing range” is the size of the puncturing matrix, which is also understood by the Examiner. The Examiner suggested that “puncturing range” should be changed to “number of columns of a puncturing matrix”. Claims 7 and 18 have been amended according to the suggestions of the Examiner. Based on the foregoing amendment, withdrawal of the rejection of Claims 7-12 and 18-21 is respectfully requested.

Regarding the second rejection of Claims 7-12 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirements, the Examiner states that “puncturing range” is non-enabling. In line with the amendments set forth above, withdrawal of the rejection of Claims 7-12 is respectfully requested.

Regarding rejected Claims 7-12 under 35 U.S.C. §112, second paragraph, as being indefinite, the Examiner stated that the phrase “selecting a predetermined number of symbols from information symbols and first and second parity symbols within a predetermined puncturing range” as recited in Claim 7 is indefinite. The Examiner assumed that it was intended to read “selecting a predetermined number of symbols within a predetermined number of columns of a puncturing matrix from information symbols and first and second parity symbols ~~within a predetermined puncturing range~~”. Based on the foregoing amendment to Claim 7, withdrawal of the rejection of Claims 7-12 is respectfully requested.

The Examiner also raised an antecedent based rejection of “the puncturing range”. As “the puncturing range” has been deleted from amended Claim 7, withdrawal of the rejection of Claims 7-12 is respectfully requested.

Finally, the Examiner states that “the predetermined number of symbols” or Ns is arbitrary. Applicants respectfully disagree. The predetermined number of symbols is specifically

selected by the method claimed, and not arbitrary. The method clearly defines how the predetermined number of symbols is selected. Based on the foregoing argument, withdrawal of the rejection of Claims 7-12 and 18-21 is respectfully requested.

Regarding rejected Claims 7-12 under 35 U.S.C. §112, second paragraph as being incomplete, the Examiner states that essential structural relationships are lacking. Applicants respectfully disagree with the Examiner. It is clear that a predetermined number of symbols is selected from the information symbols and the parity symbols contained in the predetermined puncturing range. The claims, supported by the specification, clearly define and explain these elements and their interconnection. Based on the foregoing argument, withdrawal of the rejection of Claims 7-12 is respectfully requested.

Regarding the again rejected Claims 7-12 under 35 U.S.C. §112, second paragraph as being incomplete, the Examiner states that essential structural relationships are lacking. In particular, the Examiner states that the relationship between “a number of information symbols” and “a difference between Ns” is lacking. Applicants respectfully submit that, as amended, Claim 7 clearly recites a subtraction operation ( $N_s$  - the number of columns of a puncturing matrix), the resulting difference that is then analyzed to determine if it is greater than or equal to the number of encoders. Based on the foregoing argument and amendments, withdrawal of the rejection of Claims 7-12 is respectfully requested.

Regarding the rejected Claims 18-21 under 35 U.S.C. §112, second paragraph as being indefinite, the Examiner cannot determine what falls “within the predetermined puncturing range”. It is clear from the plain language of amended Claim 18 that all of the information symbols are selected. Based on the foregoing argument and amendment of Claim 18, withdrawal of the rejection of Claims 18-21 is respectfully requested.

The Examiner rejected Claim 20 as “incomprehensible”, but not under any cited law. Specifically, the Examiner states that it is unclear what relationship the last sub-code has with the first and second sub-codes. First, Claim 20 depends on Claim 19, and thus Claim 20 must be read in light of Claim 19. Claim 19 generates a second sub-code by selecting  $N_s$  symbols from the first and second parity symbols; then in Claim 20, the last sub-code is generated by selecting all of the remaining unselected first and second parity symbols, symbols that remain after the Claim 19 second sub-code is generated. Based on the foregoing argument, withdrawal of the rejection

of Claim 20 is respectfully requested.

Finally, regarding the Examiner's antecedent basis objection to "unselected first and second parity symbols", the method in Claim 19 selects first and second parity symbols, then in claim 20 the unselected parity symbols remain. Based on the foregoing argument, withdrawal of the rejection of Claims 19 is respectfully requested.

Now turning to the rejection of Claims 7-10, 12 and 18-21, and specifically to independent Claims 7 and 18, under 35 U.S.C. §102(b), the Examiner states that Yi anticipates all of the elements of Claims 7 and 18. Claims 7 and 18 have been amended to read "within a predetermined number of columns of a puncturing matrix". Yi, which discloses a communications system handoff operation combining turbo coding and soft handoff techniques, does not disclose each element of the claims. First, Claim 7 recites that all of the information symbols are selected if the difference between  $N_s$  and the number of columns of a puncturing matrix is greater than the number of encoders. Yi does not perform any difference calculations between  $N_s$  (the predetermined number of symbols) and the number of columns of a puncturing matrix. Second, Claim 7 recites selecting as many first and second parity symbols as the difference, and again Yi does not teach any difference calculation being made and basing the selection of the number of parity bits on that difference. And third, Claim 7 recites that the number of the selected first parity symbols is equal to or greater than the number of the selected second parity symbols; Yi does not make any selection of first and second parity symbols based on this comparison. Based on at least the foregoing arguments, withdrawal of the rejections of Claim 7 is warranted.

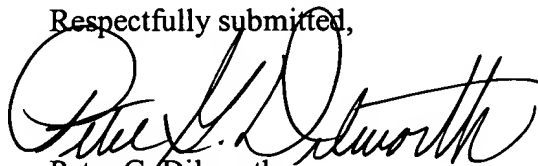
As Claim 18 recites similar elements as those of Claim 7, arguments similar to those outlined above are also applicable to Claim 18. Based on the foregoing argument, withdrawal of the rejection of Claims 18 is respectfully requested.

Independent Claims 7 and 18 are believed to be in condition for allowance. Without conceding the patentability per se of dependent Claims 8-12 and 19-21, these are likewise believed to be allowable by virtue of their dependence on their respective amended independent claims. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 8-12 and 19-21 is respectfully requested.

Accordingly, all of the claims pending in the Application, namely, Claims 7-12 and 18-

21, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicant's attorney at the number given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter G. Dilworth", written over the typed name.

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